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#### **ABSTRACT OF THE DISCLOSURE**

The invention provides a method for forming a bottle-shaped trench. A semiconductor substrate having a pad stack layer and a trench formed thereon is provided. Sidewall  
5 protective layers are then formed on the upper sidewalls of the trench. A masking layer is formed at the bottom of the trench, followed by wet etching to remove the semiconductor substrate not covered by the sidewall protective layers thus forming a bottle-shaped trench. Finally, the masking layer  
10 is removed.